

DEC 06 2006



Serial No.: 10/532,461

(US National Stage of PCT/IB2003/004701)

Applicants: LOUW, Izak de Villiers, *et. al*

Atty. Ref.: 10025.0160.PCUS00

## II. AMENDMENT TO THE CLAIMS

Please amend the claims to read as follows:

1. (Currently Amended): A process for the activation by oxyfluorination of at least part of a surface of a solid, which process includes exposing, under selected conditions of temperature and pressure and for a selected reaction time, at least part of the surface of the material of the solid to an oxyfluorinating atmosphere which is a gas/vapour mixture which includes at least one fluorine-containing gas which reacts with the material of the exposed surface, at least one oxygen-containing gas which reacts with the material of the exposed surface, and water vapour, said gases in the oxyfluorinating atmosphere acting to oxyfluorinate the exposed surface, thereby to activate the exposed surface to enhance the amenability of the exposed surface to adhesive bonding to other materials, the process including the steps whereby, in combination,

the solid material which is subjected to activation by oxyfluorination is selected from the group whose members consist of carbon, polymeric materials having constituents which are confined to carbon and hydrogen, elastomeric materials having constituents which are confined to carbon and hydrogen, polymeric materials having constituents which are not confined to carbon and hydrogen and which include, in addition to carbon and hydrogen, other atomic species as constituents, elastomeric materials having constituents which are not confined to carbon and hydrogen and which include, in addition to carbon and hydrogen, other atomic species as constituents, and mixtures of any two or more of said members;

the exposing of the solid surface to the oxyfluorinating atmosphere is carried ~~[[our]]~~out on a continuous basis by continuously transporting the solid through an open-ended reaction chamber, and

the water vapour acts further to enhance the amenability of the exposed surface, provided by the oxyfluorination achieved by said gases, to adhesive bonding to said other materials.

2-7. (Canceled)



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8. (Previously presented): A process as claimed in Claim 1, which includes selecting carbon as the material which is subjected to activation by oxyfluorination.

9-11. (Canceled)

12. (Previously presented): A process as claimed in Claim 1, which includes selecting the fluorine containing gas from the group consisting of  $F_2$ ,  $XeF_2$ ,  $ClF$ ,  $ClF_3$ ,  $BrF$ ,  $BrF_3$ ,  $BrF_5$ ,  $IF_7$ ,  $OF_2$ ,  $O_2F_2$  and mixtures of any two or more thereof.

13. (Previously presented): A process as claimed in Claim 1, which includes selecting the oxygen-containing gas which reacts with the exposed surface from molecular oxygen, ozone and mixtures thereof.

14. (Previously presented): A process as claimed in Claim 1, which includes diluting the oxyfluorinating atmosphere with a diluent gas which is inert to the exposed surface and inert to the other constituents of the oxyfluorinating atmosphere, and does not react therewith.

15-16 (Canceled)

17. (Previously presented): A process as claimed in Claim 1, which includes using, as the oxyfluorinating atmosphere, a gas/vapour mixture of molecular fluorine, molecular oxygen and water vapour.

18. (Original): A process as claimed in Claim 17, which includes diluting the oxyfluorinating atmosphere, using molecular nitrogen as a diluent.

19-28. (Canceled)



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29. (Previously presented): A process as claimed in Claim 1, which includes exposing the solid material to a said oxyfluorinating atmosphere in which the fluorine-containing gas forms 5-20% by volume and the oxygen-containing gas forms 5-95% by volume.

30-39. (Canceled)

40. (Previously presented): A process as claimed in Claim 1 in which the exposing of the solid surface to the oxyfluorinating atmosphere is for a period of 1 second – 1 hour.

41. (Previously presented): A process as claimed in Claim 1, in which the solid surface which is exposed to the oxyfluorinating atmosphere is dry.

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